Claims:

1. A system comprising a device that captures photon intensity from an illuminated object, the device being exposed to an image through a filter wheel including one or more filters that selectively pass wavelengths of light to form a visible light image of the object and a filter that selectively passes wavelengths of light to form a diagnostic image of the object, the diagnostic image corresponding to emissions from an imaging medium within the object.

2. A system comprising a plurality of devices that capture photon intensity from an illuminated object, the devices being exposed to an image through a beam splitter and filters that selectively pass incident photons along a number of paths according to wavelength, each one of the plurality of devices that capture photon intensity being selectively exposed to an image including wavelengths passed along one of the number of paths, at least one of the paths selectively passing wavelengths to form a diagnostic image of the object, the diagnostic image corresponding to emissions from an imaging medium within the object, and at least one of the paths selectively passing wavelengths to form a visible light image of the object.

3. A system comprising a device that captures photon intensity from an illuminated object at a plurality of pixel locations, each one of the plurality of pixel locations covered by a filter, at least one of the filters selectively passing wavelengths to form a visible light image of the object at a corresponding pixel location and at least one of the filters selectively passing wavelengths of light to form a diagnostic image of the object at a corresponding pixel location, the diagnostic image corresponding to emissions from an imaging medium within the object.

4. A system comprising a device that captures photon intensity from an illuminated object at a plurality of pixel locations, each one of the plurality of pixel locations including a plurality of successive diode junctions formed at the boundary of nested p-type and n-type semiconductor wells, each diode junction selectively detecting incident light over a range of wavelengths, at least one of the diode

junctions detecting wavelengths of a visible light image of the object at that pixel location and at least one of the diode junctions detecting wavelengths of a diagnostic image of the object at that pixel location, the diagnostic image corresponding to emissions from an imaging medium within the object.

5. The system of any of claims 1 through 4 wherein the device that captures photon intensity is a charge-coupled device.

6. The system of any of claims 3 or 4 wherein the device consists of a an integrated circuit.

7. The system of any of claims 1 through 6 wherein the imaging medium is at least one of a fluorescent dye, a phosphorescent substance, a chemoluminscent substance, or a scintillant substance.

8. The system of any of claims 1 through 7 wherein the imaging medium is a substance introduced into the object.

9. The system of any of claims 1 through 7 wherein the imaging medium is a substance inherently present within the object.

10. The system of any of claims 1 through 9 wherein the object is an object within a surgical field.

11. The system of any of claims 1 through 4 wherein the visible light image is monochromatic.

12. The system of any of claims 1 through 10 wherein the visible light image includes red, blue and green wavelengths of light.

13. The system of any of claims 1 through 10 wherein the visible light image includes cyan, magenta, and yellow wavelengths of light.

14. The system of any of claims 1 through 13 wherein the diagnostic image includes a near-infrared wavelength.

15. The system of any of claims 1 through 13 wherein the diagnostic image includes an infrared wavelength.

16. The system of any of claims 1 through 15 wherein the diagnostic image includes a plurality of diagnostic images, each at a different range of wavelengths.

17. The system of any of claims 1 through 16 wherein the diagnostic image is formed from one or more diagnostic wavelengths in the visible light range, the object being illuminated with a light source that is depleted in the diagnostic wavelength range.

18. The system of any of claims 1 through 17 wherein the visible light image and diagnostic image are processed and displayed in a medical imaging system.

19. The system of any of claims 1 through 18 wherein the medical imaging system includes a display for rendering a composite image including a superposition of the visible light image and the diagnostic image.

20. The system of any of claims 1 through 19 wherein the medical imaging system includes one or more inputs for controlling at least one of a field of view of the object, a focus of the object, or a zoom of the object.

21. The system of any of claims 1 through 20 wherein the medical imaging system includes a surgical tool.

22. The system of any of claims 1 through 17 wherein the visible light image and diagnostic image are processed and displayed in at least one of a machine vision

system, an astronomy system, a military system, a geology system, or an industrial system.

23. The system of any of claims 1 through 22 wherein the system is packaged in a camera.

24. The system of claim 23 wherein the camera includes a visible light image output, a diagnostic image output, and a combined image output, the combined image output providing a superposition of the visible light image and the diagnostic image.

25. The system of any of claims 1 through 24 wherein the system captures moving video.

26. The system of any of claims 1 through 24 wherein the system captures still images.

27. A system comprising a solid state device that captures a visible light image of an object under illumination in digital form and a diagnostic image of the object in digital form, the diagnostic image corresponding to an intensity of emission from an imaging medium within the object.

28. A system comprising a single camera that captures a visible light image of an object under illumination and a diagnostic image of the object, the diagnostic image corresponding to an intensity of emission from the object, the camera configured to provide a digital version of the visible light image and a digital version of the diagnostic image to an external display system.

29. A method comprising:

illuminating an object to provide an image;

capturing an image of the object that includes a visible light image and a diagnostic image, the diagnostic image corresponding to emissions from an imaging medium within the object; and

storing the image.

30. The method of claim 29 wherein capturing an image includes passing the image through a filter wheel that exposes an image capture device to the image through a plurality of filters, at least one of the plurality of filters selectively passing wavelengths of light to form a visible light image of the object and at least one of the plurality of filters selectively passing wavelengths of light to form a diagnostic image of the object.

31. The method of claim 29 wherein capturing an image includes passing the image through a beam splitter and filters that selectively pass incident photons along a number of paths according to wavelength and exposing each one of a plurality of devices that capture photon intensity to an image including wavelengths passed along one of the number of paths, at least one of the paths selectively passing wavelengths to form a diagnostic image of the object, and at least one of the paths selectively passing wavelengths to form a visible light image of the object.

32. The method of claim 29 wherein capturing an image includes capturing the image at a plurality of pixel locations, each one of the plurality of pixel locations covered by a filter, at least one of the filters selectively passing wavelengths to form a visible light image of the object at a corresponding pixel location and at least one of the filters selectively passing wavelengths of light to form a diagnostic image of the object at a corresponding pixel location.

33. The method of claim 29 wherein capturing an image includes capturing the image at a plurality of pixel locations, each one of the plurality of pixel locations covered by a filter, at least one of the filters selectively passing wavelengths to form a visible light image of the object at a corresponding pixel location and at least one

of the filters selectively passing wavelengths of light to form a diagnostic image of the object at a corresponding pixel location.

34. The method of claim 29 wherein capturing an image includes capturing the image at a plurality of pixel locations, each one of the plurality of pixel locations including a plurality of successive diode junctions formed at the boundary of nested p-type and n-type semiconductor wells, each diode junction selectively detecting incident light over a range of wavelengths, at least one of the diode junctions detecting wavelengths of a visible light image of the object and at least one of the diode junctions detecting wavelengths of a diagnostic image of the object at that pixel location.